UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/755,196	01/09/2004	David A. Olaker	10231-003	9206

29391 7590 09/07/2005

BEUSSE BROWNLEE WOLTER MORA & MAIRE, P. A.
390 NORTH ORANGE AVENUE
SUITE 2500
ORLANDO, FL 32801

EXAMINER	
DESIR, PIERRE LOUIS	

ART UNIT	PAPER NUMBER
2681	

DATE MAILED: 09/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/755,196	OLAKER, DAVID A.	
	Examiner	Art Unit	
	Pierre-Louis Desir	2681	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5* is/are rejected.

7)☒ Claim(s) *6-7* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *April 21, 2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claim 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoctor et al. (Hoctor), Pub. No. US 20040002347, in view Hawkes et al. (Hawkes), U.S. Patent No. 6201499.

Hoctor discloses a method for determining a location of a digital radio transmitter (see abstract) comprising: detecting, by at least three spatially separated receivers (see fig. 1, page 2, and paragraph 22), a digitally encoded radio signal having a known pattern of bit transitions radiated from the transmitter (i.e., the receiver of the base station receives signals from the mobile device. The inbound burst transmissions are identified to the base stations by means of unique identifying information encoded in the RF burst) (see page 2, paragraph 23); determining, at each of the receivers, a time of arrival of at least some of the bit transitions (i.e., calculating, at each of the at least three receivers, time difference of arrival information based on the wireless signals) (see page 2, and paragraph 12); transmitting, from each of the receivers, an indication of the time of arrival at each respective receiver for each of the at least some bit transitions to a central processor (i.e., communicates differences in times of arrival to the central processor) (see page 2, paragraph 23).

Although Hoctor discloses a method as described, Hoctor does not specifically disclose a method comprising determining, at the central processor, time of arrival differences of common bit transitions among the receivers; and calculating, at the central processor, the location of the transmitter based on the time of arrival differences.

However, Hawkes discloses a method comprising determining, at the central processor, time of arrival differences of common bit transitions among the receivers (i.e., time of arrival measurements at the receiving sensors are transmitted to a central processor where the time difference of arrival data is calculated) (see col. 2, line 65 through col. 3, line 1); and calculating, at the central processor, the location of the transmitter based on the time of arrival differences (see col. 3, lines 1-2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings as described by Hoctor with the teachings as described by Hawkes to arrive at the claimed invention. A motivation for doing so would have been to obtain an accurate calculation of the location of the transmitter.

Regarding claim 2, Hoctor discloses a method as described above (see claim 1 rejection).

Although Hoctor discloses a method as described, Hoctor does not specifically disclose a method further comprising averaging respective times of arrivals for multiple bit transitions in the digitally encoded radio signal to generate an average time of arrival for the digitally encoded radio signal.

However, Hawkes discloses a method further comprising averaging respective times of arrivals for multiple bit transitions in the digitally encoded radio signal to generate an average time of arrival for the digitally encoded radio signal (i.e., multiple

receiving sensors measure the time of arrival of the same transmitter signal) (see col. 2, lines 63-65).

Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings as described by Hoctor with the teachings as described by Hawkes to arrive at the claimed invention. A motivation for doing so would have been to ensure the proper result, as related to the location of the transmitter, is obtained.

Regarding claim 3, Hoctor discloses a method for determining a location of a digital radio transmitter (see abstract) comprising: detecting a digitally encoded radio signal radiated from the transmitter by at least three spatially separated receivers (i.e., the receiver of the base station receives signals from the mobile device. The inbound burst transmissions are identified to the base stations by means of unique identifying information encoded in the RF burst) (see fig. 1, page 2, paragraph 23); receiving, at each of the receivers, a common synchronizing signal (i.e., the receiver receives a sequence of TR/DH symbols, and only samples close to the expected time of the next bit are processed. Thus, the receiver receives signals in coordination with time) (see page 5, paragraph 50. Also see page, paragraph 23); detecting, at each of the receivers, bit transitions in the radio signal (i.e., detecting bit value) (see page 5, paragraph 49); recognizing a desired pattern of bit transitions (i.e., identifying bit patterns) (see page 5, paragraph 57); determining, at each of the receivers, a respective time of acquisition, offset from the synchronizing signal, for at least some of the bit transitions comprising the desired pattern (i.e., calculating, at each of the at least three receivers, time difference of arrival information based on the wireless signals) (see page 2, and paragraph 12; and page 5, paragraph 54); transmitting, from each of the receivers, an indication of the times

of acquisition to a central processor (i.e., communicates differences in times of arrival to the central processor) (see page 2, paragraph 23).

Although Hoctor discloses a method as described, Hoctor does not specifically disclose a method comprising determining, at the central processor, time of arrival differences among receivers from differences in the respective indications for common bit transitions in a desired pattern; and calculating, at the central processor, the location of the transmitter from the time of arrival differences.

However, Hawkes discloses a method comprising determining, at the central processor, time of arrival differences among receivers from differences in the respective indications for common bit transitions in a desired pattern (i.e., time of arrival measurements at the receiving sensors are transmitted to a central processor where the time difference of arrival data is calculated) (see col. 2, line 65 through col. 3, line 1); and calculating, at the central processor, the location of the transmitter from the time of arrival differences (see col. 3, lines 1-2).

Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings as described by Hoctor with the teachings as described by Hawkes to arrive at the claimed invention. A motivation for doing so would have been to obtain an accurate calculation of the location of the transmitter.

Regarding claim 4, Hoctor discloses a method for determining a location of a digital radio transmitter (see abstract) comprising: detecting a digitally encoded radio signal radiated from the transmitter by at least three spatially separated receivers (i.e., the receiver of the base station receives signals from the mobile device. The inbound burst transmissions are identified to the base stations by means of unique identifying

information encoded in the RF burst) (see fig. 1, page 2, paragraph 23); receiving, at each of the receivers, a common synchronizing pulse (i.e., the receiver receives a sequence of TR/DH symbols, and only samples close to the expected time of the next bit are processed. Thus, the receiver receives signals in coordination with time) (see page 5, paragraph 50. Also see page, paragraph 23); parsing, at each of the receivers, a received radio signal into data block samples (i.e., the samples derived for each waveform may be accumulated (parsed) in 4 corresponding registers) (see page 4, paragraph 46); detecting, at each of the receivers, potential bit transitions in the data block samples (i.e., code word detection) (page 4, paragraph 43, and page 5, paragraph 49); generating, at each of the receivers, bit transitions from the potential bit transitions (i.e., set of code words is generated) (see page 4, and paragraph 38); recognizing, at each of the receivers, a desired pattern of bit transitions (i.e., identifying bit patterns) (see page 5, paragraph 57); determining, at each of the receivers, a respective time of acquisition for at least some of the bit transitions comprising the desired pattern (i.e., calculating, at each of the at least three receivers, time difference of arrival information based on the wireless signals) (see page 2, and paragraph 12; and page 5, paragraph 54); transmitting, from each of the receivers, an indication of the times of acquisition to a central processor (i.e., communicates differences in times of arrival to the central processor) (see page 2, paragraph 23).

Although Hoctor discloses a method as described, Hoctor does not specifically disclose a method comprising time stamping, at each of the receivers, each data block sample with a time stamp offset from the common synchronizing pulse; determining, at a central processor, time of arrival differences among receivers from differences in the

respective times of acquisition for common bit transitions in a desired pattern received from each of the receivers; and calculating, at the central processor, the location of the transmitter from the time of arrival differences.

However, Hawkes discloses a method comprising time stamping samples at each of the receivers samples (i.e., time stamp may be associated with any sample) (see col. 9, lines 26-28); determining, at a central processor, time of arrival differences among receivers from differences in the respective times of acquisition for common bit transitions in a desired pattern received from each of the receivers (i.e., time of arrival measurements at the receiving sensors are transmitted to a central processor where the time difference of arrival data is calculated) (see col. 2, line 65 through col. 3, line 1); and calculating, at the central processor, the location of the transmitter from the time of arrival differences (see col. 3, lines 1-2).

Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings as described by Hoctor with the teachings as described by Hawkes to arrive at the claimed invention. A motivation for doing so would have been to obtain an accurate calculation of the location of the transmitter.

Regarding claim 5, Hoctor discloses a method (see claim 4 rejection) further comprising, for each receiver: convolving potential bit transitions in the received data block with at least two desired bit transitions to generate a correlation waveform corresponding to each of the desired bit transitions (i.e., the base station receiver is configured to receive and demodulate signals received by applying separate correlator circuits, each associated with a separate delay-hopping code. Thus, the signals, through the correlator circuit would be coiled up to generate correlation waveform, as related to

the desired code word) (see page 4, paragraph 39); and generating a bit transition corresponding to the correlation waveform having a highest peak magnitude (see fig. 6, page 4, paragraph 41).

Allowable Subject Matter

3. Claims 6-7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Richley et al., "Object Location System and Method," Pub. No. US 20040108954.

Bent et al., "Location System and Method," U.S. Patent No. 4916455.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pierre-Louis Desir whose telephone number is 703-605-4312. The examiner can normally be reached on (571) 272-7799.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Feild can be reached on (571) 272-4090. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Pierre-Louis Desir
AU 2681
09/01/2005

JEAN GELIN
PRIMARY EXAMINER